

Notice of Allowability

Application No.

10/637,164

Examiner

Melissa J. Koval

Applicant(s)

WEBER ET AL.

Art Unit

2851

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the Amendment of February 9, 2005.
2. ☒ The allowed claim(s) is/are 1-23.
3. ☒ The drawings filed on 08 August 2003 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).
- * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____
7. ☒ Examiner's Amendment/Comment
8. ☐ Examiner's Statement of Reasons for Allowance
9. ☒ Other See Continuation Sheet.


JUDY NGUYEN
SUPERVISORY PATENT EXAMINER

The terminal disclaimer filed on February 9, 2005 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of U.S. Patent 6,609,795 B2 has been reviewed and is accepted. The terminal disclaimer has been recorded.

This application is a continuation of 09/878,575,
filed June 11, 2001, now U.S. Patent 6,609,795.

Patent
Docket No. 56718US005

MSK

3/16/05

POLARIZING BEAM SPLITTER

Technical Field

5 The present invention pertains to a polarizing beam splitter useful in, among other applications, a projection system. In particular, the polarizing beam splitter combines a prism of relatively high refractive index with a birefringent multi-layer film. The multi-layer film functions as a polarizer and contains at least two different materials, at least one of which
10 exhibits birefringence after uniaxial orientation. The multi-layer film is selected so as to be stable to near UV and blue light.

Background

For projection systems that use reflective liquid crystal display (LCD) imagers, a
15 folded light path where the illuminating light beam and the projected image share the same physical space between a polarizing beam splitter (PBS) and an imager offers a compact design. Most reflective LCD imagers are polarization rotating, *i.e.*, polarized light is either transmitted with its polarization state substantially unmodified for the darkest state or transmitted with its polarization state rotated to provide a desired gray scale. Thus, a
20 polarized light beam is generally used as the input beam. Use of a PBS offers an attractive design because it can function to polarize the input beam and fold the light path.

A PBS is an optical component that splits incident light rays into a first (transmitted) polarization component and a second (reflected) polarization component. One common PBS is the MacNeille polarizer that discriminates between s and p-polarized light as described in
25 U.S. Patent No. 2,403,732 to MacNeille. In a MacNeille polarizer, the s-polarization is reflected and, over a narrow range of angles near the Brewster angle, the p-polarization is mostly transmitted. The p-component corresponds to light polarized in the plane of incidence. The s-component corresponds to light polarized perpendicular to the plane of incidence. The plane of incidence means a plane defined by a reflected light ray and a normal to the
30 reflecting surface.